



Province of the  
**EASTERN CAPE**  
EDUCATION

## **NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**JUNE 2017**

### **MATHEMATICAL LITERACY P2 MEMORANDUM**

**MARKS: 100**

<b>Symbol</b>	<b>Explanation</b>
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RM	Reading from a table/Reading from a graph/Read from map
F	Choosing the correct formula
SF	Substitution in a formula
J	Justification
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding Off/Reason
AO	Answer only
NPR	No penalty for rounding

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This memorandum consists of 6 pages.

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QUESTION 1 [30]			
Ques.	Solution	Explanation	Level
1.1.1	Because of the fixed monthly cost ✓✓ <b>OR</b> No charge for copying ✓✓	2A Explanation (2)	L2 F
1.1.2	You only pay the fixed cost and not for any copies made up to a certain point. ✓✓ <b>Accept any logical explanation</b>	2A Explanation (2)	L2 F
1.1.3	Company A: Cost for one copy $4\ 000 = 1000 + (3\ 500 - 1500) \times \text{Cost per copy}$ $4\ 000 - 1000 = 2\ 000 \times \text{cost per copy}$ $3\ 000 = 2\ 000 \text{ cost per copy}$ $\text{Cost per copy} = 3\ 000/2\ 000$ ✓ $= R1,50$ ✓ <b>OR</b> Using any other points from the graph	1M Subtracting 1 500 1M Subtracting 1000 1M Dividing by 500 1CA (4)	L3 F
1.1.4	Cost for Company B $= 1\ 500 + (\text{Number of copies} - 500) \times 1,25$ ✓✓ <b>OR</b> Cost of Company B $= 1\ 500 + 1,25 \times \text{number of copies above } 500$	1A Fixed Cost 1A no of copies more than 500 1A Cost per copy (3)	L4 F
1.1.5	The intersection points indicate the point where the number of copies ✓ and the cost for two or more companies are the same ✓	1A Refer to number of copies the same 1A Refer to cost the same (2)	L3 F
1.1.6	4 000 ✓; 4 750 ✓	1A Number of copies 1A Cost (2) Accept 4 700 on the vertical axis	L2 F
1.1.7	Company A ✓✓	2A Correct choice (2)	L2 F
1.1.8	4 001 copies ✓✓	2A Correct minimum (2)	L3 F

1.2.1	<p>Number of coloured pencils across  <math>= 79 \text{ mm} / 7 \text{ mm} \quad \checkmark</math>  <math>= 11,28571429 \quad \checkmark</math>  <math>= 11 \text{ pencils} \quad \checkmark</math></p> <p>Number of pencils down  <math>= 18 \text{ cm} / 17,5 \text{ cm} \quad \checkmark</math>  <math>= 1,028571429</math>  <math>= 1 \text{ pencil} \quad \checkmark</math></p> <p>Total number of pencils in one container  <math>= 11 \times 1</math>  <math>= 11 \text{ pencils} \quad \checkmark</math></p> <p>Number of pencils in 3 containers  <math>= 11 \times 3 \quad \checkmark</math>  <math>= 33 \text{ pencils} \quad \checkmark</math></p>	<p>1M Dividing diameters  1 CA  Simplification  1 R Number of pencils</p> <p>1M Dividing heights  1 R Number of pencils</p> <p>1CA Number of pencils</p> <p>1M Multiply by 3  1CA (8)</p>	L3 M
1.2.2	<p>Probability of taking a red pencil from a container  <math>= \frac{9}{33} \quad \checkmark</math>  <math>= 0,272727272</math>  <math>= 0,273 \quad \checkmark</math></p>	<p>CA from 1.2.1  1A Numerator  1A Denominator</p> <p>1R to 3 decimal places (3)</p>	L2 P

[30]

QUESTION 2 [25]			
Ques.	Solution	Explanation	Level
2.1			
2.1.1	It means half (50%) of 12 year old boys are taller or shorter than other boys. ✓✓  <b>OR</b> The boy has an average height. ✓✓	2A Explanation  (2)	L4 D
2.1.2	His height-for-age puts him between the 5 <sup>th</sup> and the 25 <sup>th</sup> percentile, therefore he is below average height-for-age ratio. ✓✓	2A Below average (2)	L3 D
2.1.3	The curves are the steepest between 5 ✓ and 7 years ✓  <b>Accept between 4 and 8 years</b>	1A 5 years 1A 7 years  (2)	L4 D
2.1.4	Height: 1,27 m = 127 cm ✓ Height in inches = $\frac{127 \text{ cm}}{2,54 \text{ cm}}$ ✓ = 50 inches ✓ According to the graph with a height of 127 cm OR 1,27 m OR 50 inches a boy will be 13 years. ✓ <b>OR</b> At the age of 15 years a boy will be 53 inches  Statement invalid ✓	1C m to cm 1M Dividing by 2,54 1CA Inches 1A Explanation   1O Not valid (5)	L4 M
2.1.5	Boys with Down Syndrome develop differently than normal boys. ✓✓ <b>Accept any other relevant answer</b>	2A Explanation  (2)	L4 D
2.2			
2.2.1	Range = Highest value – Lowest value $11 = A - 8$ ✓ $A = 19$ ✓	1M Concept of range 1CA Value of A (2)	L2 D
2.2.2	Mean = $8 + 9 \times 4 + 10 \times 2 + 11 \times 2 + 12 \times 3 + 13 \times 3 + 14 \times 3 + 15 \times 3 + 16 \times 8 + \frac{17 \times 4 + 18 \times 2 + 19}{36}$ ✓ = $\frac{499}{36}$ = 13,86 ✓	CA from 2.2.1 1M Adding all 36 values 1A Dividing by 36  1CA Simplification <b>NPR</b> (3)	L3 D

2.2.3	$B = \frac{11+12}{2} \quad \checkmark$ $= 11,5 \quad \checkmark$ $C = \frac{14+15}{2} \quad \checkmark$ $= 14,5 \quad \checkmark$ $D = 16 \quad \checkmark$	1A Identifying the correct values 1CA Value of B  1M Concept of median 1CA Value of C  1CA value of D (5)	L2 D
2.2.4	$P(\text{girl not 16 years and younger}) = \frac{7}{36} \quad \checkmark$	1A Number older than 16 1A No. of girls (2)	L2 P

[25]

### QUESTION 3 [26]

Ques.	Solution	Explanation	Level
3.1			
3.1.1	Per annum if rounded = R3 651 x 11 = R40 161 ✓ Actual amount per annum = R40 166 ✓ Rounding to a whole number gives a difference of R5,00 ✓✓	1MA 3 651 x 11 1RT Correct value 2O Comparison(4)	L4 F
3.1.2	Grade 11 Learner = R104 670 – ( R104 670 x 0,05) ✓ = R104 670 – R5 233,50 ✓ = R 99 436,50 ✓  Grade 3 Learner = R5 807 x 11 ✓ = <u>R63 877</u> ✓  4 = R15 969,25 ✓  Grade 7 Learner = <u>R68 373</u> ✓ 11 = R6215,73 x 3 ✓ = R18 647,18 ✓  Total cost for the first term = R99 436,50 + R15 969,25 + R 18 647,18 ✓ = R134 052,93 ✓	1M Calculate 5% 1M Subtract 5% 1CA Cost  1M Multiply by 11 1M Dividing by 4 1CA Cost  1M Dividing by 11  1M Multiply by 3 1CA Cost  1M Adding  1CA Total Cost (11)	L3 F
3.1.3	• Smaller classes ✓✓ <b>OR</b> • Individual and Special attention ✓✓ <b>OR</b> • More extra-mural activities ✓✓ <b>Accept any relevant answer</b>	2O Reason   (2)	L4 F

3.2			
3.2.1	Total Parts = (6 tubes x 4 each) ✓ + 1 + 4 + 4 + 8 + 4 ✓ = 45 parts ✓	1A Total tubes 1A Other parts 1CA Total parts(3)	L2 M&P
3.2.2	<ul style="list-style-type: none"> <li>Fix the tubes together ✓✓</li> <li>Connect the ends by the plastic parts supplied ✓✓</li> <li>Throw over the cover and tie at tube No.6 ✓✓</li> </ul>	2A Tubes first 2A Other parts second 2A Cover (6)	L4 M&P
3.2.3	Small parts is choking hazard ✓✓	2R Reason (2)	L4 M&P

**[28]**

<b>QUESTION 4 [17]</b>			
4.1			
4.1.1	Original capacity = $\frac{95000}{1,2559}$ ✓✓ = 75 642,9652 ✓ = 75 643 ✓	1M Dividing 1A Correct % 1CA Answer 1R Rounding (4)	L3 M
4.1.2	North stand ✓ South stand ✓ A better view over the pitch ✓✓	1A North Stand 1A South Stand 2R Reason (4)	L2& L4 M&P
4.1.3	For Non Manchester United fans ✓✓ <b>OR</b> For wheel chairs ✓✓	2O Reason (2)	L4 M&P
4.1.4	For surface water to run off easily ✓✓ <b>Accept any relevant answer</b>	2O	L4 M&P
4.1.5	If 100 yards = 91,44 metres Than 1 yard = 0,9144 metres ✓ Length = 115 x 0,9144 ✓ = 105, 156 ✓ ≈ 105 m  Width = 74 x 0,9144 = 67,6656 ✓ ≈ 68 m Area = length x width = 105 m x 68 m ✓ = 7 140 m <sup>2</sup>	1A Simplify 1C Convert to metres 1CA Length   1MA Convert to metres   1M Multiply approximated length and width (5)	L3 M

**[17]****TOTAL : 100**